

AIR MONITORING FOR HAZARDOUS MATERIALS (165.4) 5 DAYS

This course instructs participants in the practices and procedures for monitoring and sampling airborne hazardous materials. It is designed for personnel who evaluate releases of airborne hazardous materials at hazardous waste sites or accidental hazardous material releases. Evaluation of worker exposure to these releases is emphasized.

Topics that are discussed include air monitoring and sampling programs, air monitoring and sampling techniques, air monitoring and sampling equipment, instrument calibration, exposure guidelines, air dispersion modeling, and health and safety considerations. The course will include operating procedures for specific air monitoring and sampling equipment, as well as strategies for air monitoring and sampling at abandoned hazardous waste sites and for accidental releases of hazardous chemicals.

Instructional methods include a combination of lectures, group discussions, problem-solving sessions, and laboratory and field exercises with hands-on use of instruments.

After completing the course, participants will be able to:

- Properly use the following types of air monitoring and sampling equipment:
 - Combustible gas indicators
 - Oxygen monitors
 - Detector tubes
 - Toxic gas monitors
 - Photoionization detectors
 - Flame ionization detectors
 - Gas chromatographs
 - Sampling pumps and collection media
 - Direct-reading aerosol monitors.
- Identify the operational parameters, limitations, and data interpretation requirements for the instruments listed above.
- Identify the factors to be considered in the development of air monitoring and sampling plans.
- Discuss the use of air monitoring data for the establishment of personnel and operations health and safety requirements.

Note: Calculators are recommended.

Continuing Education Units: 3.0

ABIH Certification Maintenance points: 4.0

Course Dates and Locations

1999

November 1–5

Region 4

December 6–10

Region 8

2000

January 10–14	Region 7	June 5–9	Region 10
February 7–11	Region 5	June 26–30	Region 6
February 28 – March 3	Edison, New Jersey	July 24–28	Region 1
March 27–31	Region 9	August 21–25	Region 2
May 8–12	Cincinnati, Ohio	September 25–29	Region 3

Agenda

AIR MONITORING FOR HAZARDOUS MATERIALS (165.4)

City, State
Month, Date, Year

COURSE DIRECTOR: , Tetra Tech NUS, Inc.
INSTRUCTORS: , Tetra Tech NUS, Inc.
 , Tetra Tech NUS, Inc.
TECHNICIAN: , Tetra Tech NUS, Inc.

DAY and TIME	SUBJECT	SPEAKER
Monday, Date		
1:00 – 2:00 p.m.	Orientation / Introduction	
2:10 – 3:20 p.m.	Air Monitoring Plans and Strategies	
3:30 – 4:45 p.m.	Exposure Limits and Action Levels	
Tuesday, Date		
8:00 – 8:50 a.m.	Oxygen Monitors, Combustible Gas Indicators, and Specific Chemical Monitors	
9:00 – 9:50 a.m.	Total Vapor Survey Instruments	
10:00 – 12:00 p.m.	Exercises	
	A. Oxygen Monitors/CGIs/Specific Chemical Monitors	
	B. Photoionization Detectors - Survey	
	C. Flame Ionization Detectors - Survey	
12:00 – 1:00 p.m.	LUNCH	
1:00 – 3:00 p.m.	Exercises	
	A. Photoionization Detectors - Survey	
	B. Flame Ionization Detectors - Survey	
	C. Oxygen Monitors/CGIs/Specific Chemical Monitors	

<i>DAY and TIME</i>	<i>SUBJECT</i>	<i>SPEAKER</i>
Tuesday (cont.)		
3:00 – 5:00 p.m.	Exercises	
	A. Flame Ionization Detectors - Survey	
	B. Oxygen Monitors/CGIs/Specific Chemical Monitors	
	C. Photoionization Detectors - Survey	
Wednesday, Date		
8:00 – 8:50 a.m.	Air Sample Collection	
9:00 – 9:50 a.m.	Introduction to Gas Chromatography	
10:00 –12:00 p.m.	Exercises	
	A. Gas Chromatography - OVA	
	B. Detector Tubes	
	C. Direct-Reading Aerosol Monitors	
12:00 – 1:00 p.m.	LUNCH	
1:00 – 3:00 p.m.	Exercises	
	A. Detector Tubes	
	B. Direct-Reading Aerosol Monitors	
	C. Gas Chromatography - OVA	
3:00 – 5:00 p.m.	Exercises	
	A. Direct-Reading Aerosol Monitors	
	B. Gas Chromatography - OVA	
	C. Detector Tubes	
Thursday, Date		
8:00 –10:00 a.m.	Exercises	
	A. Gas Chromatography - Photovac (PID)	
	B. Sampling Pumps and Collection Media	
10:00 –12:00 p.m.	Exercises	
	A. Sampling Pumps and Collection Media	
	B. Gas Chromatography - Photovac (PID)	
12:00 – 1:00 p.m.	LUNCH	
1:00 – 5:00 p.m.	Field Exercise	

<i>DAY and TIME</i>	<i>SUBJECT</i>	<i>SPEAKER</i>
Friday, Date		
8:00 – 9:00 a.m.	Air Dispersion Modeling	
9:10 –10:30 a.m.	Air Dispersion / Computer Model Demonstration	
10:40 –11:40 a.m.	Written Test	
11:40 –12:00 p.m.	Course Closing	

REQUIREMENTS

AIR MONITORING FOR HAZARDOUS MATERIALS (AMFHM) (165.4)

FACILITY REQUIREMENTS

1. Classroom Space

Three rooms in close proximity to each other are required to present the course. The main classroom should be approximately 50×30 feet and should contain enough tables and chairs to comfortably seat 30 students and provide about 3 linear feet of desk space per student. Two extra tables for instructor use are also needed. The other rooms will be used as ancillary classrooms during split sessions and for equipment storage and maintenance. These rooms should each be at least 400 square feet with tables and chairs to accommodate 15 people. Approximately 50 shipping cases weighing 3500 pounds and 20 compressed gas cylinders will be stored in these rooms also. The classrooms should be on the first floor or ground level with easy access to the outdoors for field exercises. If the classrooms are not on the ground level, an elevator capable of handling the shipping cases is required. The classroom should have adjustable lighting and all rooms should have adequate ventilation and electrical outlets.

2. Facility Access

ERTP staff will require 24-hour exclusive use of the classrooms from course setup through closure.

The course director will arrange the initial setup time and discuss exclusive use requirements with the facility contact. E RTP staff will need access to the classrooms between 7:00 am and 5:00 pm.

3. Outdoor Space

An outdoor area of about 50×50 feet minimum is required for the field exercises. The outdoor area should be convenient to the classrooms, but located so that students can work without attracting an audience. An indoor space of comparable size (one of the ancillary rooms if large enough) can be used.

4. Visual Equipment

Each classroom should contain the following materials:

- A chalkboard, chalk, and erasers **or** whiteboard, markers, and erasers.

The main classroom should have:

- Screen for showing slides.

This equipment will be needed Monday morning through Friday afternoon. If these materials are not available at the facility, please notify the course director so alternate arrangements can be made to ship these materials to the facility.

5. Refreshments and Meals

Coffee and soft drinks that students can purchase should be available near the classroom. A list of nearby, quick-service restaurants and maps to these restaurants should be provided to Environmental Response Training Program (ERTP) Training Registration 8 weeks prior to the course.

6. Telephones

The facility should have telephones available for outgoing telephone calls. The facility contact should provide the course director with a telephone number that can be used for incoming emergency calls and messages.

7. Maps and Area Information

A legible map (not hand drawn) indicating the locations of the facility and area hotels should be sent to ERTP Training Registration 8 weeks prior to the course. Hotel names, addresses, telephone numbers, and regular and government rates should be included. Directions to and from the airport should also be provided, either on the facility and hotel map(s) or on a separate map. In addition, please include the telephone number of the local chamber of commerce.

PARTICIPANT INFORMATION

This course is designed for personnel who evaluate releases of airborne hazardous materials at hazardous waste sites or for accidental hazardous material releases. Evaluation of worker exposure to these releases is emphasized.

No more than 30 participants may be enrolled in each AMFHM course. Any deviations in class size must be approved in advance by the course director. ERTP Training Registration and the local contact must coordinate participant registration. Any questions the participants have about enrollment in ERTP courses should be directed to ERTP Training Registration (participants in EPA Regions 1, 6, and 8 should direct questions to the regional training contact).

The local contact should inform participants of the following course-related information:

- No special clothing is required; casual dress is encouraged.
- Calculators are recommended.
- The course lasts 5 days.
- Class begins at 1 p.m. on Monday and 8 a.m. Tuesday through Friday; class ends at 5:00 p.m. Monday through Thursday and ends at 12 noon on Friday.
- To receive an EPA course certificate, 100-percent attendance is mandatory.

SHIPPING REQUIREMENTS

1. Facility Contact

The name and telephone number of the facility contact should be provided to E RTP Training Registration. The facility contact will be responsible for receiving a Federal Express shipment of compressed gas cylinders and 50 cases of course materials (approximately 3500 pounds). Course instructors will require access to these materials at the time of course setup.

2. Hazardous Materials

Approximately 20 small cylinders of compressed gases and 2 cylinders containing hydrogen (a flammable gas) will be shipped with the course materials. The compressed gases will contain mixtures of acetone, benzene, xylenes, ethylbenzene, toluene, hexane, 1,1,1-trichloroethane, carbon dioxide, isobutylene, carbon monoxide, isopropyl alcohol, pentane, and methane in air. There will also be about 150 milliliters of flammable liquids (toluene, acetone, hexane, mineral spirits, and 1,1,1-trichloroethane). The facility contact should verify whether the facility has restrictions on using, handling, or storing these materials. Material safety data sheets are available upon request.

At the end of the course there will be an excess of chemicals (rubbing alcohol, cleaning ammonia, and vinegar) that must be disposed of. Although these chemicals are relatively harmless, the facility contact should oversee their proper disposal.

3. Equipment Delivery

All course materials and equipment are shipped via Federal Express. The physical address (if different from the mailing address), telephone number, and hours of operation for the facility must be provided to E RTP Training Registration so shipping arrangements can be made. Federal Express will not deliver to a post office box or leave materials after hours.

Equipment is usually delivered by 4:30 p.m. on the Friday before the course. The course director will verify whether the shipment has been received at the facility. E RTP staff will call Federal Express to trace the shipment, if necessary.

4. Shipping of Equipment

Normal Federal Express pickup for materials being shipped back to the E RTP Training Center in Cincinnati, Ohio, is on Friday between 12:00 noon and 4:30 p.m.